What is Claimed is:

1. Nucleic acid, comprising 18 ~ 25 nucleotides, which preferentially hybridizes to at least one of the 16S rRNA and the rDNA of chlorinated ethylene-decomposing bacteria and has a base sequence selected from the group consisting of (a) a base sequence of SEQ ID No. 1 through No. 15, (b) a base sequence having at least 90% homology with a base sequence of SEQ ID No. 1 through No. 15, and (c) a base sequence complementary to said base sequence of one of (a) and (b).

2. Nucleic acid, comprising 10 ~ 50 nucleotides, which preferentially hybridizes to at least one of the 16S rRNA and the rDNA of chlorinated ethylene-decomposing bacteria, wherein a base sequence of at least 10 individual bases in succession has a base sequence selected from the group consisting of (d) the same as any of base sequences of SEQ ID No. 1 through No. 15, and (e) a base sequence complementary to said base sequence of (d).

3. A labeled probe for the detection of chlorinated ethylene-decomposing bacteria comprising said nucleic acid of claim 1 which is labeled by at least one of a radioactive element, enzyme, fluorescent substance, antigen, antibody, and chemical substance.

4. A labeled probe for the detection of chlorinated ethylene-decomposing bacteria comprising said nucleic acid of claim 2 which is labeled by at least one of a radioactive element, enzyme, fluorescent substance, antigen, antibody, and chemical substance.

5. A method of detecting chlorinated ethylene-decomposing bacteria in a sample, comprising:

performing PCR (polymerase chain reaction) using said nucleic acid of claim 1 as the primer and a nucleic acid in said sample as template; and

detecting the DNA fragment that has been synthesized.

6. A method of detecting chlorinated ethylene-decomposing bacteria in a sample, comprising:

performing PCR (polymerase chain reaction) using said nucleic acid of claim 2 as the primer and a nucleic acid in said sample as template; and

detecting the DNA fragment that has been synthesized.

7. A method of detecting chlorinated ethylene-decomposing bacteria, comprising:

bringing said labeled probe for detecting chlorinated ethylene-decomposing bacteria of claim 3 into contact with one of a sample and nucleic acid prepared from a sample to perform RNA or DNA hybridization; and

detecting chlorinated ethylene-decomposing bacteria using the label as an indicator.

8. A method of detecting chlorinated ethylene-decomposing bacteria, comprising:

bringing said labeled probe for detecting chlorinated ethylene-decomposing bacteria of claim 4 into contact with one of a sample and nucleic acid prepared from a sample to perform RNA or DNA hybridization; and

detecting chlorinated ethylene-decomposing bacteria using the label as an indicator.

9. A method of decomposing at least one of chlorinated ethylene and chlorinated ethane in a substance to be treated, comprising:

performing said detection of chlorinated ethylene-decomposing bacteria of claim 5; and

introducing a material, in which chlorinated ethylene-decomposing bacteria have been detected, or a cultivation liquid inoculated with said chlorinated ethylene-decomposing bacteria, to said substance contaminated by chlorinated ethylene or chlorinated ethane.

10. The method of decomposing at least one of chlorinated ethylene and chlorinated ethane in a substance to be treated wherein said substance is at least one of underground water and soil.

11. A method of decomposing at least one of chlorinated ethylene and chlorinated ethane in a substance to be treated, comprising:

performing said detection of chlorinated ethylene-decomposing bacteria of claim 6; and

introducing a material, in which chlorinated ethylene-decomposing bacteria have been detected, or a cultivation liquid inoculated with said chlorinated ethylene-decomposing bacteria, to said substance contaminated by chlorinated ethylene or chlorinated ethane.

12. The method of decomposing at least one of chlorinated ethylene and chlorinated ethane in a substance to be treated according to claim 11 wherein said substance is one of underground water and soil.

13. A method of decomposing at least one of chlorinated ethylene and chlorinated ethane in a substance to be treated, comprising:

performing said detection of chlorinated ethylene-decomposing bacteria of claim 7; and

introducing a material, in which chlorinated ethylene-decomposing bacteria have been detected, or a cultivation liquid inoculated with said chlorinated ethylene-decomposing bacteria, to said substance contaminated by chlorinated ethylene or chlorinated ethane.

14. The method of decomposing at least one of chlorinated ethylene and chlorinated ethane in a substance to be treated according to claim 13 wherein said substance is one of underground water and soil.

15. A method of decomposing at least one of chlorinated ethylene and chlorinated ethane in a substance to be treated, comprising:

performing said detection of chlorinated ethylene-decomposing bacteria of claim 8; and

introducing a material, in which chlorinated ethylene-decomposing bacteria have been detected, or a cultivation liquid inoculated with said chlorinated ethylene-decomposing bacteria, to said substance contaminated by chlorinated ethylene or chlorinated ethane.

16. The method of decomposing at least one of chlorinated ethylene and chlorinated ethane in a substance to be treated according to claim 15 wherein said substance is one of underground water and soil.

17. A method of decomposing at least one of chlorinated ethylene and chlorinated ethane in a substance to be treated, comprising:

detecting chlorinated ethylene-decomposing bacteria in a material by performing PCR (polymerase chain reaction) using a first nucleic acid as the primer and a nucleic acid in said detection sample as template, and detecting the DNA fragment that has been synthesized;

said first nucleic acid comprising 18 ~ 25 nucleotides which preferentially hybridizes to at least one of the 16S rRNA and the rDNA of chlorinated ethylene-decomposing bacteria and has a base sequence selected from the group consisting of (a) a base sequence of SEQ ID No. 1 through No. 15, (b) a base sequence having at least 90% homology with a base sequence of SEQ ID No. 1 through No. 15, and (c) a base sequence complementary to said base sequence of one of (a) and (b); and

introducing said material, in which chlorinated ethylene-decomposing bacteria have been detected, or a cultivation liquid inoculated with said chlorinated ethylene-decomposing bacteria, to said substance contaminated by chlorinated ethylene or chlorinated ethane.

18. The method of decomposing at least one of chlorinated ethylene and chlorinated ethane in a substance to be treated according to claim 17 wherein said substance is one of underground water and soil.

19. A method of decomposing at least one of chlorinated ethylene and chlorinated ethane in a substance to be treated, comprising:

providing a labeled probe for the detection of chlorinated ethylene-decomposing bacteria having a nucleic acid, comprising 18 ~ 25 nucleotides which preferentially hybridizes to at least one of the 16S rRNA and the rDNA of chlorinated ethylene-decomposing bacteria and has a base sequence selected from the group consisting of (a) a base sequence of SEQ ID No. 1 through No. 15, (b) a base sequence having at least 90% homology with a base sequence of SEQ ID No. 1 through No. 15, and (c) a base sequence complementary to said base sequence of one of (a) and (b), which is labeled by at least one of a radioactive element, enzyme, fluorescent substance, antigen, antibody, and chemical substance;

bringing said labeled probe for detecting chlorinated ethylene-decomposing bacteria into contact with a material to perform RNA or DNA hybridization;

detecting chlorinated ethylene-decomposing bacteria using the label as an indicator; and

introducing said material, in which chlorinated ethylene-decomposing bacteria have been detected, or a cultivation liquid inoculated with said chlorinated ethylene-decomposing bacteria, to said substance contaminated by chlorinated ethylene or chlorinated ethane.

20. The method of decomposing at least one of chlorinated ethylene and chlorinated ethane in a substance to be treated according to claim 19 wherein said substance is one of underground water and soil.